

Case 3183

***Pagurus clypeatus* Fabricius, 1787 (currently *Coenobita clypeatus*; Crustacea, Decapoda): proposed replacement of syntypes by a neotype**

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Abstract. The purpose of this application is to conserve the accustomed usage of the name of the common West Indian land hermit crab *Coenobita clypeatus* (Fabricius, 1787), the type species of *Coenobita* Latreille, 1829. The two existing syntypes represent two different and equally well known Indo-Pacific species: *Coenobita rugosus* Milne Edwards, 1837 and *C. violascens* Heller, 1862. It is proposed that stability should be maintained by the replacement of the two existing East Indies syntypes of *Pagurus clypeatus* Fabricius, 1787 with a West Indies neotype in the sense of the usage of the name since 1919. This will also conserve the names *C. rugosus* and *C. violascens*. The names of *Coenobita* Latreille, 1829 and of its type species, *Pagurus clypeatus* Fabricius, 1787, were placed on Official Lists in Opinion 1575 (March 1990).

Keywords. Nomenclature; taxonomy; Crustacea; Decapoda; COENOBITIDAE; *Coenobita*; *Coenobita clypeatus*; *C. rugosus*; *C. violascens*; hermit crabs; West Indies.

1. The specific name of *Pagurus clypeatus* Fabricius, 1787 has been misinterpreted for many years and, with one exception, incorrectly applied to a large and common West Indian species of the land hermit crab genus *Coenobita* Latreille, 1829. The nominal genus *Coenobita* was established by Latreille (1829, p. 77) with '*Pagurus clypeatus* Fab., Herbst (1791)' as the only included species.

2. Fabricius (1787, p. 328, figs. 116, 117) established the name *Pagurus clypeatus* citing both of Herbst's (1791, p. 22, pl. 23, figs. 2A, B), at the time unpublished, figures of '*Cancer clypeatus*'. It appears as though he based his description on the larger of the two specimens figured by Herbst. The type locality was cited as 'India orientali'. Two specimens in the Herbst collection in the Naturhistorisches Forschungsinstitut Museum für Naturkunde zu Berlin (personal examination by PMcL) agree with Herbst's figures with the exception that the stridulating ridge, present on the larger specimen, is not shown plainly in Herbst's figure (1791, pl. 23, fig. 2B), nor is it mentioned in his description. Herbst's specimens do not represent a single species. The larger figure represents the common Indo-Pacific species known as *Coenobita rugosus* Milne Edwards, 1837 (p. 241; see para. 4 below); the smaller

figure appears to be another Indo-Pacific species, *C. violascens* Heller, 1862 (p. 524). As with all of Herbst's material, the labels were changed during the 19th century by either W. Peters or E. von Martens (resident curators in the Berlin Museum). The label accompanying Herbst's *Coenobita* specimens presently reads '*C. rugosa*', and that is what Sakai (1999, p. 12) meant when he noted that '*Coenobita rugosa*' was in the Herbst collection. Sakai's figure (1999, pl. 3G) is Herbst's larger specimen of *Cancer clypeatus* (i.e. *Pagurus clypeatus* Fabricius, 1787 in its original sense).

3. From Olivier's (1811, p. 643) description and color notes of '*Pagurus clypeatus*' and the subsequently published illustration (Latreille, 1818, pl. 311, fig. 1), Owen (1839, p. 84) rightly concluded that Olivier's taxon was not conspecific with that of Herbst (1791), to whom he (Owen) attributed authorship of the species. It was Olivier's (1811) '*Pagurus clypeatus*' upon which Jarocki (1825) based his new genus *Carcinion*, an unused name which, as a senior objective synonym of *Coenobita* Latreille, 1829, was suppressed by the Commission in Opinion 1575 (March 1990; BZN 47: 67–68). Owen (1839) described Olivier's species '*Pagurus clypeatus*' as *Coenobita olivieri*, basing his interpretation on Olivier's description and figure, and also a specimen from the 'Sandwich' (Hawaiian) Islands. Although Owen (1839) was the only 19th or 20th century carcinologist to correctly interpret *Pagurus clypeatus* Fabricius (Herbst's *Cancer clypeatus*), he believed, incorrectly, that Herbst's figures represent a single specimen (with fig. 2B as an enlargement of fig. 2A); the syntypes are, however, two distinct species (see para. 2 above).

4. Milne Edwards (1837, p. 238) presented a diagnosis of the genus *Coenobita* (spelled as *Cenobita*) and briefly described several species. The species included, among others, '*Cenobita clypeatus*' with reference to Herbst (1791), Fabricius (1798) and Latreille (1803; 1818; 1829); *C. diogenes*, with reference to Catesby (see para. 7 below) and Latreille (1818), and his own new species *C. rugosa*. Although Milne Edwards gave only a general description of the species he incorrectly identified as *C. clypeatus*, he did note the equally developed coxae of the fifth pereopods (a characteristic of *C. brevimanus* Dana, 1852). In his description of *C. rugosus* (as *rugosa*, but *Coenobita* is masculine), Milne Edwards specifically mentioned the stridulating tubercles; only the taxon currently known as *C. clypeatus* (see para. 7 below) was illustrated (Milne Edwards, 1837, p. 240, pl. 22, figs. 11–13).

5. Dana (1852, p. 473; 1855, pl. 30, figs. 4a, b) cited and illustrated the general characters Milne Edwards (1837) had attributed to *Coenobita clypeatus* and established the 'variety' *brevimanus* for a specimen from Balabac Passage (Malaysia) with a more circular chela, the outer surface of which was smoother than in the nominotypical 'variety'. As a result of Milne Edwards's misinterpretation of Herbst's (1791) taxon, *Coenobita brevimanus* Dana, 1852 was commonly reported as *C. clypeatus* for the next 100 years (e.g. Hilgendorf, 1869; De Man, 1902; Borradaile, 1903; Alcock, 1905; Fize & Serène, 1955; 29 additional references have been given to the Commission Secretariat). Rathbun (1910, p. 314) was the first to recognize the distinctiveness of *C. brevimanus*, and to call attention to the fact that Dana's species was the *Coenobita clypeatus* of Alcock (1905, p. 142, pl. 15, figs. 1, 1a), not the *Cancer clypeatus* of Herbst (1791). Terao (1913, p. 388) proposed the new name *Coenobita hilgendorfi* for the Indo-West Pacific species that Hilgendorf (1869) and Alcock (1905) had incorrectly identified as *Coenobita clypeatus*. After Rathbun (1919) the name *Coenobita clypeatus* was accepted by most subsequent authors dealing with

the West Indian form (see Schmitt, 1935, p. 207; Provenzano, 1959, p. 359; Chace & Hobbs, 1969, p. 123; De Wilde, 1973; Rodriguez, 1980, p. 220). Although it took quite a long time before *brevimanus* was generally accepted for the Indo-West Pacific species this name is now in current use (e.g. Ball & Haig, 1972; Nakasone, 1988; Burggren & McMahon, 1988).

6. Hilgendorf (1869, p. 98) attributed authorship of *Coenobita clypeatus* to Milne Edwards (1837; see para. 4 above), and included only the report by Dana (1852, 1855) in his synonymy. From his description, figures, and the one remaining specimen of his '*C. clypeatus*' (= *C. brevimanus*) still in the Berlin Museum (personal examination by PMcL), it is clear that he accepted Milne Edwards's interpretation of *Coenobita clypeatus* (= *C. brevimanus*). Apparently Hilgendorf, like Owen, believed that Herbst's description and illustrations were based on a single specimen, and that it was no longer extant because the larger of the two Herbst specimens did not agree with his interpretation of *C. clypeatus*. In his identification of the smaller of Herbst's specimens as '*Coenobita diogenes*' it appears that Hilgendorf was also following the remarks and diagnosis of Milne Edwards. Accordingly, Hilgendorf concluded that Herbst had made a mistake in stating the type locality of *Cancer clypeatus* as the East Indies, but not until Schmitt (1935, p. 208) was Hilgendorf's (1869) locality 'correction' noticed.

7. The West Indian species of *Coenobita* was first mentioned and illustrated as '*Cancellus Terrestris Bahamensis* The Hermit Crab / Bernard l'hermite' by Catesby (1743, pl. 33, figs. 1, 2) (the 1754 2nd edition is cited in the literature). Catesby's figures were reproduced by Latreille (1818, pl. 284, figs. 2, 3) as *Pagurus diogenes* citing 'L[innæus], p. 1049, no. 58' (= 1767, not 1758). Milne Edwards (1837) transferred *P. diogenes* to *Coenobita* and in all subsequent reports in the 19th and early 20th centuries the West Indian species was referred to as *Coenobita diogenes*. Rathbun (1897) listed the species as '*Coenobita diogenes* (Linnaeus)' also citing Linnaeus (1767, p. 1049) and Milne Edwards (1837, p. 240, pl. 22, figs. 11–14) in her synonymy. In contrast, Benedict (1901) reported '*Cenobita diogenes* (Latreille)', including in his synonymy Latreille (1818) and Milne Edwards (1837).

8. Subsequently, when Rathbun (1919, p. 329) again reported on the West Indian *Coenobita*, her synonymy included *Cancer diogenes* Linnaeus (Edwards, in Catesby, 1771 [3rd edition], pl. 33, figs. 1, 2) from Florida; Herbst's (1791) description and illustrations of *Cancer clypeatus*, attributed to Latreille (incorrectly cited with the date and reference of Olivier, 1811); and Milne Edwards's (1837) report of *Cenobita diogenes*. It is unclear whether Rathbun (1919) was aware at that time of Hilgendorf's (1869) erroneous 'correction' of Fabricius's (1787) type locality for *Pagurus clypeatus* (Herbst's *Cancer clypeatus*) from East Indies to West Indies. Having earlier (Rathbun, 1910, p. 314) distinguished between Alcock's (1905, p. 142, pl. 15, figs. 1, 1a) '*Coenobita clypeatus* Latreille' (= *C. brevimanus* Dana) and Herbst's (1791) *Cancer clypeatus*, Rathbun (1919) emphatically rejected the specific name *diogenes* for the West Indian species of *Coenobita*, stating correctly that Linnaeus's (1758, p. 631) description of *Cancer diogenes* applied to a species of *Petrochirus*. Following Rathbun's (1919) adoption of '*Coenobita clypeatus* Herbst' for the Atlantic species, many authors discontinued the use of the specific name *diogenes* for this taxon. However, Rathbun's (1919) use of *C. clypeatus* was either not widely known, or perhaps not always accepted, as reports of *Coenobita diogenes* continued to appear in

the literature for another 35 years (e.g. Kinzig, 1921; Kammerer, 1926; Pearse, 1929a, b; Haas, 1950; Fize & Serène, 1955). Rathbun's (1919) application of the name '*Coenobita clypeatus* Herbst' was emphasized by Holthuis (1959), who provided more detailed information on *Cancer diogenes* Linnaeus, 1758.

9. Morgan & Holthuis (1988, BZN 45: 18–20) applied to the Commission for the conservation of the generic name *Coenobita* Latreille, 1829, which was threatened by the senior synonyms *Carcinion* Jarocki, 1825 and *Cenobites* Berthold, 1827, and also possibly by the senior subjective synonym *Eremita* Osbeck, 1765. The names *Coenobita* and its type species *Pagurus clypeatus* Fabricius, 1787 were placed on Official Lists in Opinion 1575 (March 1990). In their proposal, Morgan & Holthuis cited the type species of *Carcinion* Jarocki, 1825 as '*Pagurus clypeatus* Oliv.' (= *Pagurus clypeatus* Fabricius, 1787). However, as mentioned in para. 3 above, *Pagurus clypeatus* sensu Olivier, 1811 is not *Pagurus clypeatus* Fabricius, 1787.

10. Not only has the identity of *Pagurus clypeatus* Fabricius, 1787 been incorrectly interpreted, so has its authorship. As pointed out by Morgan & Holthuis (1989, p. 177), authorship of this nominal taxon has been attributed most frequently to Herbst (1791), but also to Fabricius, 1798 (e.g. Dana, 1852; Henderson, 1888), to Latreille, 1825 (e.g. Alcock, 1905; Fize & Serène, 1955; Yaldwyn & Wodzicki, 1979), and to Milne Edwards, 1837 (Hilgendorf, 1869; Whitelegge, 1897).

11. In view of the misunderstanding and misuse of the specific name *clypeatus* for more than 200 years, the most appropriate action is to request the Commission to designate, in accordance with Article 75.6 of the Code, a West Indies neotype for *Pagurus clypeatus*; the meaning of the specific name would thus be fixed as it has been understood since Rathbun (1919). As neotype we propose the male specimen described and illustrated by Chace & Hobbs (1969, p. 123, figs. 33, 34b, c), United States National Museum, Washington, No. USNM 126773, station 17, Batali River, N. of Savane, Dominican Republic, collected in 1964 by R.L. Zusi, on dry land at an elevation of about 60 m. Setting aside the Herbst syntypes of *P. clypeatus* will conserve the specific names of the two East Indian taxa *Coenobita rugosus* Milne Edwards, 1837 and *C. violascens* Heller, 1862 (see para. 2 above).

12. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to set aside all previous type fixations for the nominal species *Pagurus clypeatus* Fabricius, 1767 and to designate the male specimen USNM 126773, referred to in para. 11 above, as the neotype;
- (2) to add to the entry on the Official List of Specific Names in Zoology for *Pagurus clypeatus* Fabricius, 1787 (specific name of the type species of *Coenobita* Latreille, 1829) an endorsement recording that the species is defined by the neotype designated in (1) above;
- (3) to place on the Official List of Specific Names in Zoology the following names:
 - (a) *rugosus* Milne Edwards, 1837, as published in the binomen *Cenobita rugosus*;
 - (b) *violascens* Heller, 1862, as published in the binomen *Cenobita violascens*.

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